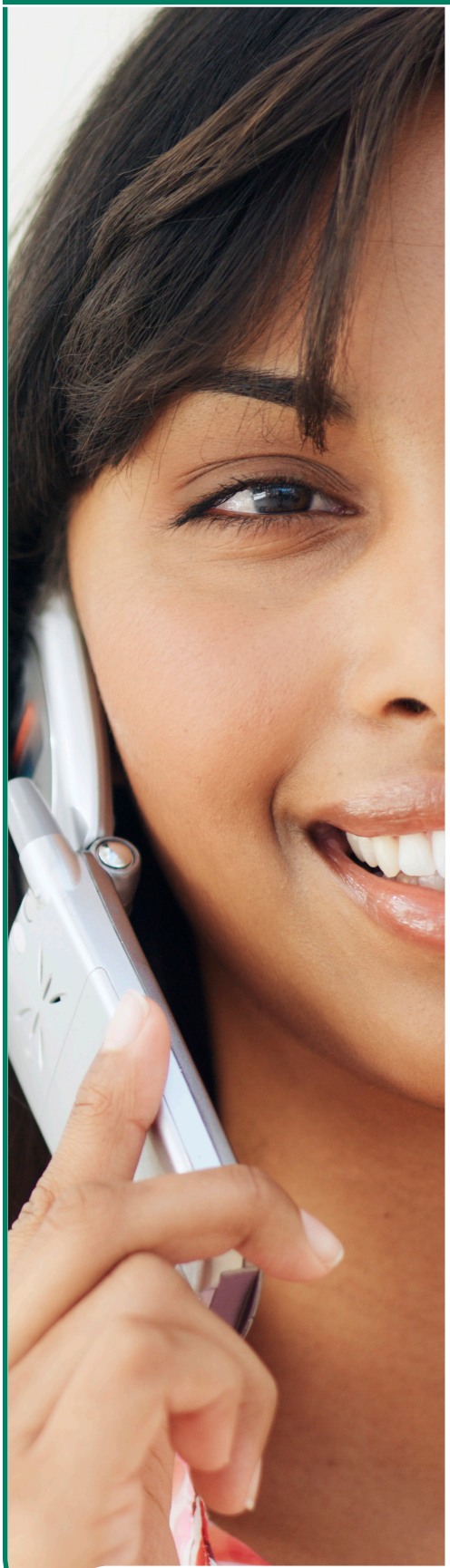
Frequently Asked Questions about Cell Phones and Your Health



What is a cell phone? How does it work?

A cell phone is a portable telephone. A cell phone uses a network of "base stations," or fixed antennas, that allow users to place calls from almost any location. The phones send and receive radiofrequency signals to and from the base station. Base station antennas often are mounted on towers. They can also sit on rooftops, water towers, power poles, and other tall structures. All cell phones are tested according to government standards. Cell phones cannot be marketed or sold unless they have passed these standards. More information about these standards and test information for specific phone models are available at the Federal Communications Commission Web site: http://www.fcc.gov/cgb/cellular.html.

What is RF?

RF stands for "radiofrequency" energy or radiation. Electromagnetic radiation consists of waves of electric and magnetic energy moving together (radiating) through space. Radio waves and microwaves released by transmitting antennas are one form of electromagnetic energy. Often the terms "electromagnetic field" or "radiofrequency field" are used to indicate the presence of electromagnetic or RF energy.

What is non ionizing radiation?

RF fields are non ionizing radiation. Non ionizing radiation has lower energy and longer wavelength than ionizing radiation. It is not strong enough to change the structure of atoms it contacts but may be strong enough to heat tissue. Examples include radio waves, microwaves, visible light, and infrared.

RF radiation is not the same as ionizing radiation, such as x-rays or gamma rays. Ionizing radiation potentially can result in chemical changes in the body. Because RF fields have lower energy they cannot cause ionization.

What is ELF radiation?

ELF stands for "extremely low frequency" radiation. ELF is another type of non ionizing electromagnetic radiation. It is emitted by electric current such as overhead power lines or anything else with electricity flowing through it. Even though they are both non-ionizing, RF radiation is much higher frequency than ELF radiation and therefore is potentially more harmful.

Does using a cell phone cause health problems? Can using one cause cancer?

In the last 15 years, hundreds of new research studies have investigated whether health problems can be linked to cell phone use. Some of these studies have suggested the possibility that long-term, high cell phone use may be linked to certain types of brain cancer. These studies do not establish

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this link definitively. Scientists will need to conduct more studies to learn more about this possible risk. Studies have also addressed the risk of injury to drivers and to pedestrians using cell phones; other activities of daily living may also be associated with increased risk of injury when using a cell phone.

In addition to investigating the association between cell phone use and cancer, many researchers including the World Health Organization are studying other health effects. These include the potential development of benign tumors of the nerve connecting the ear and the brain (acoustic neuroma) as well as effects on the eyes, sleep and memory problems, and headaches. Information about the WHO study can be found at http://www.iarc.fr/en/media-centre/pr/2010/pdfs/pr200_E.pdf .

The Food and Drug Administration (FDA) has reported one other potential health effect. Studies have shown that when some cellular phones are placed very close to implanted cardiac pacemakers they can interfere with the pacemaker's normal delivery of pulses. For most digital phones and pacemakers now in use, this does not have an effect if the phone is more than about six inches from the implanted pacemaker. Thus using the phone in the normal talking position would not disturb the operation of these pacemakers.

The FDA has more information about RF exposure from mobile phones at http://www.fda.gov/Radiation-EmittingProducts/RadiationEmittingProductsandProcedures/HomeBusinessandEntertainment/CellPhones/default.htm.

Do cordless telephones emit radiation?

Cordless telephones work the same as cell phones. Therefore they do emit the same kind of radiation. The cordless phone is limited to being close to the single base unit to which it belongs, while a cell phone can be carried around all across the country because it can connect to the many base stations available for that cell phone system. Scientists can not yet provide specific estimates comparing the risks of using cordless telephones to the risks of using cell phones.

How likely is it that a cell phone user will develop a glioma or acoustic neuroma?

The recent studies suggest a possible link between these tumors and radiofrequency from cell phones.
More research is needed to establish this link conclusively and to quantify these potential health risks.

What are the effects of acoustic neuroma?

Acoustic neuroma is not a cancer. It is attached to the acoustic nerve in the ear. Although it may grow in size, it does not spread to other parts of the body. These growths most commonly cause an abnormal sensation of movement and/or hearing loss,

Are children at greater risk from cell phone use?

We are not aware of any study that has looked specifically at how radiofrequency exposure might affect children. We do know that children who start using cell phones early in life potentially will be exposed to radiofrequency for longer periods during their lifetimes.

Should people stop using cell phones?

Cell phones can save time and even save lives. At the same time, the use of cell phones may carry some risks. These risks likely are comparable to other lifestyle choices we make every day.

How can people reduce their exposure?

Functions that allow cell phone users to operate their phones at a distance may reduce exposure to radiofrequency. These precautions include the use of a hands-free headset directly connected to the cell phone, the speaker phone function, and carrying the phone at least one inch away from the body.

Does using Bluetooth technology reduce the possible health risks?

We are not aware of any study that has looked at the possible effects of using Bluetooth technology to limit radiofrequency exposure. Bluetooth technology does emit radiofrequency radiation, thus it also may carry some risk of exposure. A hands-free headset directly connected to the cell phone does not rely on RF radiation; therefore, it likely would pose less risk.

Are some cell phones safer than others?

We are not aware of a study comparing health risks for different models of cell phones. Different models of phones do vary in the level of RF radiation exposure; so it is possible that risks of adverse health effects also may vary.

For more information about RF radiation exposure, visit: http://www.who.int/mediacentre/factsheets/fs193/en